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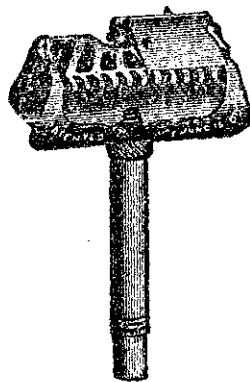
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THIS school is devoted to the teaching of science, as applied to the various engineering professions; viz., civil, mechanical, mining, and electrical engineering, as well as to architecture, chemistry, metallurgy, physics, and natural history.

Besides the above distinctly professional courses, the Institute offers scientific courses of a less technical character, designed to give students a preparation for business callings. A four years' course in biology, chemistry, and physics has been established, as preparatory to the professional study of medicine.

Modern languages are taught, so far as is needed for the ready and accurate reading of scientific works and periodicals, and may be further pursued as a means of general training.

The constitutional and political history of England and the United States, political economy, and international law are taught, in a measure, to the students of all regular courses, and may be further pursued as optional studies.

Applicants for admission to the Institute are examined in English grammar, geography, French, arithmetic, algebra, modern history, and geometry. A fuller statement of the requirements for admission will be found in the catalogue, which will be sent, without charge, on application.

A clear admission paper from any college of recognized character will be accepted as evidence of preparation, in place of an examination.

Graduates of colleges conferring degrees, who have the necessary qualifications for entering the third-year class in any of the regular courses of the Institute, will be so admitted, provisionally, on the presentation of their diplomas, and will be given opportunity to make up all deficiencies in professional subjects.

The feature of instruction which has been most largely developed in the school is laboratory training, shop-work, and field-practice, to supplement, to illustrate, and to emphasize the instruction of the recitation and lecture room.

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The fee for tuition is \$200 a year. Besides this, \$25 or \$30 are needed for books and instruments. There are no separate laboratory fees; only payment for articles broken is required.

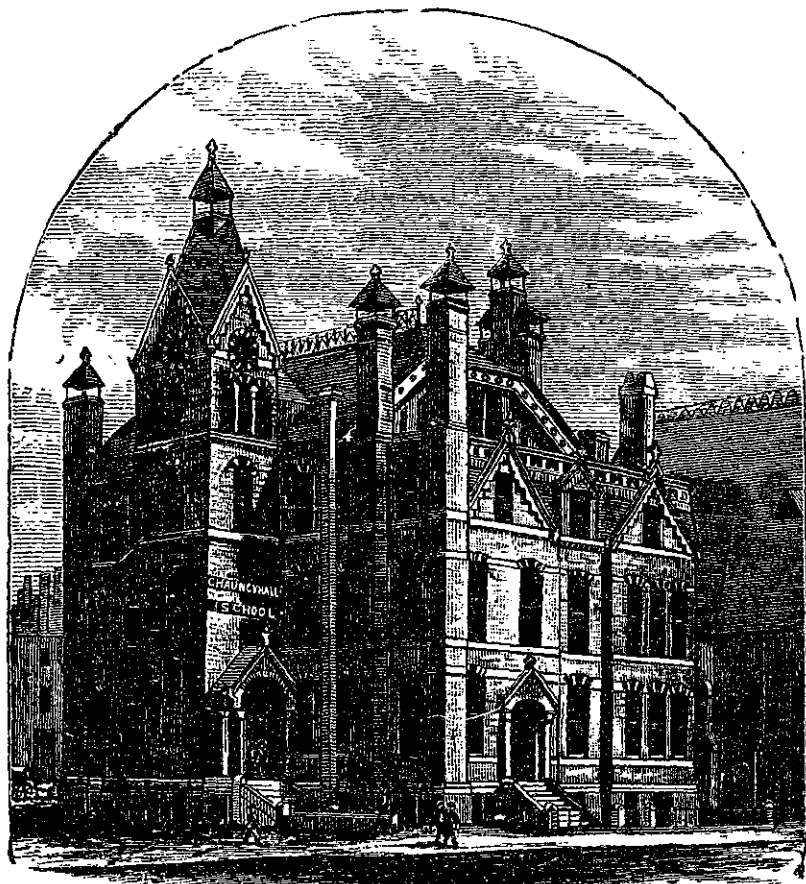
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The Tech.

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BOSTON, NOVEMBER 18, 1886.

NO. 3.

THE TECH.

Published on alternate Thursdays, during the school year, by the students of the Massachusetts Institute of Technology.

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THE game with Williams, although most disheartening in its result, should not entirely discourage our fellows in their hopes for a good position in the League. The game was played under peculiar circumstances, which although they could not be said to favor either side, still were more against us than against Williams. The probabilities are that the first Amherst-Williams game will be allowed to stand. This will necessitate that Williams should play off her tie-game with us. As it will be some time before this game can come off, our men must improve every spare moment for practice, as it is only by that that we can hope to win the victory.

Nor should our fellows look for too easy a victory over Tufts, as they may possibly be mistaken in their men if they are over-confident.

It is altogether too soon to begin to despair; and although we have not made as good a showing as we could have wished, we may yet retrieve our past fortunes and come out well in the end.

IT is very hard for a student to be unable to spend Christmas at home, and yet this is the case with a great many of us at the Institute. There is a constantly increasing number of students who come from a distance to pursue their courses of study here, and it seems as if some provision should be made for a Christmas holiday, so that they can pass that joyous festival at home. This is about the only prominent educational institution in the country where no Christmas holiday is given, and there seems to be a growing dissatisfaction among the students in regard to this.

A week given as a holiday would only put off the semi-annual examinations, and make the second term begin and end a week later, thus taking it out of the very long summer vacation. This week's holiday would enable the students to go home, and at the same time would give them valuable time in which to review the studies of the term, preparatory to the examinations. Cannot a general movement be made to petition the Faculty for this holiday? Any such movement must be made soon, before the calendar of the year is made up and printed in the catalogue. It is sincerely hoped that the Faculty will consider the matter favorably, and grant the much-needed recess.

MUCH money, which might otherwise be saved, is lost each year through lack of a book exchange.

Once in awhile a student, by posting a notice on the bulletin-board, finds a purchaser for his last year's text-book. This, however, occurs seldom, and only after more or less correspondence on the part of both buyer and seller. In most cases the money invested in text-books is a complete loss.

The functions of a book exchange are these: A responsible person is employed to buy the books which one class has just finished, and sell them to the next, charging only enough commission to pay the running expenses. The exorbitant profits made by the down-town book-dealer are thus avoided, and a necessarily large factor in college expenses much reduced, not to speak of the time and trouble of tramping all over town to find the required book, for the exchange should be in one of the Institute buildings.

Not much capital would be required to start such an enterprise, and, after a time, it would pay a good rate of interest.

Every student should, in self-defense, take an interest in the formation of such a book exchange, and yet it seems that a matter of such importance should attract the attention of the Board of Trustees; for do not the students constitute an important element of the corporation over which they have charge? and should not anything which affects them, either intellectually, morally, or pecuniarily, merit their careful consideration?

OUR Athletic Association is one of our oldest and most flourishing institutions. The exhibitions conducted by it have always been the leading athletic features at the Institute, and serve in many ways to make the Institute prominent. There are usually three meetings held each year: one in December, which is limited to the Institute athletes; one in either February or March, open to other amateurs; and an out-door meeting, where the runners, etc., can have a chance. The open meetings are quite a novelty, giving the Institute an opportunity to compete against other colleges.

This association certainly deserves great credit for its success and works. By offering prizes, and giving chances for the display of prowess, it stimulates students to do gymnasium work which is undoubtedly of great value to them. It also encourages our other athletics by lend-

ing a helping hand when necessary, thus establishing and promoting schemes that otherwise would have failed. The outcome has been, that we have a set of records to be proud of, which are every year being bettered. The tug-of-war teams promote class spirit and interest, and our representative four has been beaten but once by Harvard. The present management shows a progressive spirit, and intends to offer prizes this year superior to all former efforts in that line.

With all this to be said in its favor there is one weak point: its membership is exceedingly small, and quorums are almost unobtainable. The reason for this is hard to find. Members have free attendance at games, and can direct the expenditure of the large amount in the treasury, besides the honor. To the new men we will say, that there is no surer way of becoming prominent in college affairs than by joining an organization like this, where all classes are represented, and all are co-workers. Let this be in fact, as in name, an Institute affair. Let all join in the work, and not shift the responsibility to the shoulders of a few self-sacrificing men who are now giving their time and attention for your benefit.

LACROSSE is the latest scheme to be proposed at the Institute, and is already receiving attention from those interested in the sport. It was started by some of our lower classmen, and speaks well for their enterprise. It may be regarded with distrust by some of our more conservative class, and also by those who think that foot-ball should engage all our attention. To the former we will say, that the innovations of last year do not seem to seriously affect, if at all, the standard institutions; and the latter will, on reflection, see that foot-ball is from its nature limited as to numbers and individual requirements. A class of men too light to participate in a foot-ball scrimmage might find lacrosse less exact as to physical standards, and also the chances of injury being less would serve as an argument for some. The large

number of students here should easily be able to support two fall sports, and the popularity of lacrosse in this district should furnish teams enough to compete against. There should be quite a number of players here now, and they should take interest enough to make the venture successful. This may be the long-sought-for chance which our gymnasium athletes have waited for. We refer to a class of men who seemingly prefer to work indoors, rather than engage in our open-air sports. This gymnasium work is excellent for the winter months, but those who prefer to struggle with the chest-weights and other inanimate appliances in a crowded room, to engaging in brisk games of either foot-ball, lacrosse, or tennis, in this invigorating atmosphere, need looking after. Their hard study has probably affected their minds. Exercise to be both interesting and beneficial should combine mental with physical activity. This is the result aimed at and obtained in every popular sport. If lacrosse can have any effect with these men we will gladly welcome it, and in any case let there be a fair trial given.

FEW students realize the amount of hard work done by the members of the foot-ball team to keep up the reputation of the Institute in that branch of athletics. Many think and assert that the men play simply because they like it. This is not wholly true. While they enjoy the game, they sacrifice much valuable time, and work hard to add to the glory of the Tech. An hour and a half every afternoon for practice, and many entire afternoons, taken for games, count for a great deal in an institution like ours, where time is so valuable; yet when the men take their time, work hard, and train conscientiously, many students say, "Why shouldn't they? they like it," and refuse to support the team either financially or by attending the games to cheer our men to victory. This is a deplorable state of affairs, and should be remedied. Let everyone do what he can to support the team, and to show them that their work is appreciated.

She says Good-bye, and moves away.

She says good-bye, and moves away,
In maiden's sweet young womanhood;
Then, smiling, turns again to say
Good-bye: God give her every good!

Why is it when I'm desolate
She says good-bye, and moves away,
While I, alone, must work and wait
The dawning of a happier day?

This afternoon we went to stray
Where genial summer was fulfilled:
She says good-bye, and moves away,
And winter has all nature chilled.

But summer comes again, and then
She comes. 'Tis only summer gay
Near her; 'tis winter only when
She says good-bye and moves away.

G. K.

A Bear Chase along the Forks of the Yager.

"MR. PHELAN, I believe?"

"That's what they call me in these parts," was the answer.

"Well, my name is Odd," and with a handshake I explained the object of my visit, asking if I might accompany him on his next bear-hunt, as I was anxious for a chase, never having followed the hounds.

Phelan was a professional hunter, employed by the owners to hunt bears, panthers, and coyotes on the Fort Baker range. On this range about 20,000 sheep are kept, and as the country is almost entirely unsettled, bears and coyotes are very plentiful, and at times play sad havoc with the sheep. Phelan was provided with a pack of dogs, but was expected to hunt only as often as they were in shape. Without the dogs nothing could be done. Besides his wages he was entitled to the hides of all the bears he killed, and also to the fat, which amounted usually to a considerable sum. The gall-bladders were a perquisite also, for he sold these when dried to the Chinamen, who use them in the concoction of some salve or other.

Phelan was a fine type of vigorous manhood, well built, though slight; exceedingly strong, and as quick as the creatures he hunted. Sixty years had not been able to bend his upright

frame, though his closely clipped whiskers showed patches of white.

As we sat down on a log in front of his little log-cabin, the old hunter said that he was going out on a chase early the next morning, and if I could join him by five o'clock at his camp we would start together. The old man had followed hunting as a business since the early days of California, and during this time had had many strange experiences. Not a few of his adventures occurred in parts of the country with which I was familiar, and as he recited them I was deeply interested.

The dogs came in for their share of criticism and praise, and he called up several for me to look at. They were all gaunt and thin, for their only food was bear's meat, of which they ate their fill only as often as a bear was killed. They had been without food now for nearly a week, and all were more or less lame. Their last hunt had been long and unsuccessful. A little brown bear, weighing not over seventy-five pounds, had led them a lively chase for eight hours up and down canyons, twisting and turning, till finally the dogs, tired and discouraged, gave up the chase. The whole pack wore muzzles, to keep them from killing sheep. The two trackers, who were powerful dogs (a cross between mastiff and hound), on returning home from unsuccessful hunts, have often killed whole bands of sheep. One would seize the sheep by a hind leg, the other by the shoulder, tearing the creatures to pieces. As soon as one was killed they attacked another, killing for killing's sake. There were a dozen dogs in all, of various sizes and breeds. Among them were three or four little terriers, whose duty it was to bring the bear to bay when the larger dogs failed to tree him. Their *modus operandi* was to run up and bite the soles of the bear's hind feet when he started to run. Bruin would then turn around and strike at them; but the active little dogs were as quickly out of reach, only to bite his soles again as soon as he attempted to go on.

Phelan and I were no longer strangers when, after three hours of talking, I mounted my horse

and cantered off to the ranch where I was staying, some three miles distant. A pair of spurs and the thought of a good feed in store for him helped my mustang along wonderfully, and in twenty minutes I was alongside the bars of the corral. Giving my animal some water and a plentiful supply of hay, I left him for the night.

The next thing was to clean and oil my Winchester, and this done, it was time for supper. I retired early, setting my alarm for four o'clock. When it went off, and wakened me, I was in the midst of a desperate encounter with a bear, which was hugging me with all his strength. Just as I had abandoned all hope, and given up the battle, he let go his grip somewhat, and began to snarl terribly. I was wondering who it could be coming to my rescue, when I awoke, the alarm-clock ringing as if possessed.

After a light breakfast I was off, the hired hand on the ranch coming along with me, to see the fun, and by five o'clock we were on the hunt with Phelan. The dogs were all animation, and showed their delight unmistakably.

A half-hour's slow riding brought us to a bear-track crossing the road, and as quick as a flash the trackers were off and away, the other dogs following, save two or three that we kept with us. The cries of the dogs rang out loud and musical that still, glorious morning, as the hounds followed Bruins tracks through the dense forest of pines and oaks. Echoing and re-echoing among the dark cañons and timber-clothed ridges, the sounds acted upon us like an inspiration. Having tied our horses we followed the dogs, keeping on the ridges above them, and guided by their music.

About an hour after we started, the character of the baying suddenly changed; it grew faster, louder. "They've started him," said Phelan; "he'll soon be treed;" and then he said that I might shoot the bear if it wasn't a big one, but would have to treat if I fail to kill him the first shot. But as it happened, Phelan didn't get his whiskey nor I my bear.

After the dogs we went as fast as legs could carry us, for the music betokened a hot chase.

The barking changed again. "He's bayed now," said our old hunter, and by a gesture he sent off the dogs that were with us to join their fellows. We hurried on after them, hoping to reach the spot while the bear was still there. But as we drew near the place we heard the pack going over the ridge above us, and we could do nothing but follow.

On and on we went, from the north Yager, over the divide into the cañon of the middle Yager. But no sound of dogs could be heard, and we knew not where to go. However, we climbed a lofty butte some distance off, and when we reached the top could faintly hear the dogs far beyond. The chorus grew louder as the pack approached, and luckily before long the bear was bayed quite near us. Down the steep we went at break-neck speed, through poison-oak and chaparal, till we reached the bottom of the cañon; but, alas! Bruin was off again. We followed the chase along the bed of the creek, tracking the animals by the splashes on the rocks, but finally lost all traces of bear and dogs alike. We kept on, however, clambering over huge boulders and under the drift. For three miles or more we were compelled to travel thus, for the banks were so high and steep that we couldn't get out.

At length out we came into open country and quit the stream, seeking the tops of the ridges, as before. Hungry and tired, we rested often before we reached the top, but were cheered up again by hearing the dogs as we came to the crest. Their bark was unlike anything we had heard hitherto, and Phelan said the bear must finally have "treed." Yelling to the dogs and firing our rifles we hurried toward them. They kept barking in the same place, and we felt sure we were near our reward. Slowly and softly we approached the spot. From the sounds it seemed as if the dogs must be lying around a tree and barking first at one and then another. But we could see no bear, and great was our puzzlement. They couldn't have killed him themselves, for they had on their muzzles. The problem was finally solved as we came fully up to the dogs, for there they lay ranged around the

carcass of a huge bear; but, alas! one that Phelan had killed four days before. In chasing their bear they had come across the dead one, and having eaten all they could (their muzzles not preventing this) felt no further inclination to continue the chase.

Collecting the dogs we began the journey homeward, with the satisfaction, however, of knowing we had the dogs; for had they continued on their unprofitable chase we would have followed them, had it been to the Pacific Ocean. The ten miles before us seemed long enough, but we plodded slowly on, up over the divides and down into the cañons, every step bringing us nearer the horses.

We stopped once to play with a rattlesnake that got in our way. He escaped, however, and we took up our march again.

What a relief it was to be once more in the saddle, resting our tired legs. "We'll get that scoundrel yet," said Phelan. "I'm going to try again Monday, and maybe you would like to come along." There was a tone of uncertainty in his voice as he spoke these last words. He probably imagined that we had that day all the hunting we wanted for the present. We told him, however, that we would be there by daylight on Monday, ready for another chase; and saying good-night, we left for the ranch as fast as our hungry mustangs could carry us. It was after six when we got back, and supper was ready; the reader may imagine the rest.

Our hunt on Monday was supremely satisfactory, as we killed our bear by nine o'clock. It was the same one that led us the wild chase of a few days before, as we could see by a peculiarity of his track.

At breakfast next morning we felt fully avenged for the trouble he had given us, as we ate numberless tender and juicy steaks from the flank of his bearship.

A FRESHMAN'S DEATH-SONG.

Little drops of acid,
Little grains of salt,
Make the loud explosions
And dreams of burial-vault.

—H. S. World.

Noticeable Articles.

THE subject of Technical Education is attracting great attention in England as well as in this country. Englishmen are alarmed at the rapid progress their continental rivals are making, and at the preference they find given in the markets of the world to the manufactures of other countries over their own, and they rightly attribute it to their backwardness in technical training. They have, for instance, nothing to show that can for a moment compare with the magnificent scientific colleges and trade schools of Germany. Their awakened interest in the subject finds expression in many articles in their periodicals. In the *Contemporary* for August there is a paper on the Study of Science by that eminent man of science, Sir John Lubbock. It is an address delivered on the unveiling of the statue of Sir Josiah Mason, the wealthy Birmingham manufacturer who has founded and endowed the splendid Mason Science College in that great manufacturing city, itself a monument of the change which is going on in English education. After quoting from the reports of Royal Commissions, that had been appointed to inquire into the subject, Sir John says:—

“Speaking two years ago at Bristol, I pointed out how much science is still neglected in our endowed schools. At the time, the statement was much criticised. I was told I was speaking of a time many years back; that the course of instruction had been greatly improved; and some even went so far as to lament that classics were being neglected for science. Accordingly I moved for a new return, which has been issued within the last four months, and shows, I regret to say, but little improvement. Two hundred and forty schools have sent returns, and it appears that in fifty-four of them, or over 20 per cent, no science whatever is taught; in fifty, one hour is devoted to it per week; in seventy-six, two hours, or less than three; while, out of the whole number, only six devoted to it as many as six hours per week. It is clear, therefore, that, in spite of all which has been said, very little progress has been made in this respect. Our schools are generally more industrious, but, remarkable as it may appear, Latin and Greek absorb more time than ever. . . . Commission after commission—those of 1861, 1864, 1868, and 1873,—have deplored the neglect of science and modern languages, and yet . . . there were, according to the Technical Commission last year, only three

schools in Great Britain in which science is fully and adequately taught.”

Sir John says justly that scientific men are no enemies to the classical form of education,—there is room enough for both. They only argue that this monstrous disproportion should cease, and it is because the old-fashioned schools and colleges cling so blindly to their old-fashioned curriculum, that new institutions like the Mason Science College are rising up all over the land.

In the *Nineteenth Century* for October, Thomas Wright, “Journeyman Engineer,” touches on the subject in a paper entitled “Our Craftsmen.” Mr. Wright is a real workingman, and the author of an excellent book on the education of workingmen. He speaks of the incalculable value of science classes to workingmen. “Engineering,” he says, “is, I take it, a trade that would be as largely benefited as any by a sound and generally available system of technical education; and that trade has gained more in the way of such education from the institution of the Whitworth Scholarships than from all the efforts of the Government Science and Art Department. The scholarships have been founded with princely munificence, but their successful results are less due to this fact than to the judgment and common sense displayed by their founder, Sir Joseph Whitworth, the well-known engineer, as an organizer. The competitive examination for these scholarships is not in the ‘bookish theoretic’ alone,—is not mere paper-work answers to a string of examination questions. . . . Each candidate has to give proof of his skill in handling tools and using the materials of his craft, and that in no amateurish fashion. That is the prime condition, and the manipulative skill and the bookish knowledge are so arranged as to act and re-act upon each other in such a fashion that the competitor whose technical knowledge, on the whole, is the most practical, and the most readily susceptible of being practically applied, stands the best chance of success. . . . A man holding one of these scholarships may, with a considerable amount of confidence, aspire to the higher positions in the trade; and, on this ground, men of social standing above the artisan classes, and who aim only at the higher positions, compete for the scholarships.”

In the October number of the *Fortnightly*, Sir John Lubbock has a paper on “Manual Training in Elementary Schools,” a subject which is just now attracting so much attention in this country. He is

justly severe on the stupid, pedantic management of English elementary education, and in illustration of their *dementalsing* effect, states the fact that in the half-time schools in the manufacturing town of Keighley, the percentage of passes at the examinations is higher than the average of passes of children receiving double the amount of schooling throughout the country. In the course of his paper he mentioned the magnificent efforts of an English gentleman to improve the education of the working-classes in London, Mr. Quentin Hogg, "at the old Polytechnic Institute." "The members and students now, I understand, number nearly ten thousand, and, not only does Mr. Quentin Hogg devote an immense amount of time to the work, but the cost to him cannot be much below £10,000 a year."

The present writer, while in London this summer, visited the new "City and Guild of London Technical School," at South Kensington, and was kindly shown over it by the secretary. It is a magnificent building, magnificently equipped, in many respects almost a duplicate of our own Institute, its arrangement, in some respects perhaps, superior, but in many it seemed to him, in spite of the lavish expenditure of money, decidedly inferior. It has been recently opened, and has as yet but few students, and the secretary complained that there was great difficulty in getting properly prepared candidates. The course of study seemed, in consequence, decidedly inferior to that of our Institute. But from these and many other signs it is very apparent that England is at last waking up to her great deficiencies in scientific education.

W. P. A.

ERRATA.

In noticeable articles in the last number, for "a *quarter* measure of self-government" read "*greater* measure," and for "J. Theodore *Burt*" read "J. Theodore *Bent*."

The Thoughtfulness of '90.

At a recent class meeting, the freshmen, acting under the advice of '89, elected two editors for "Technique," who reported to the editor-in-chief, Mr. Claffin. They were politely told that '88 greatly appreciated their thoughtfulness and courtesy, but that '88 felt fully equal to the task of publishing the annual herself.



The Amherst Student in speaking of the recent Amherst-Tech game says: "The Technology men played like gentlemen, and well deserved their victory." This is rather a contrast to what the *Dartmouth* says. One would hardly imagine from reading the two papers that we played the same team on both days.

Princeton beat Harvard 12 to 0.

Yale beat University of Pennsylvania 75 to 0.

After the game with Williams last Saturday, Herrick was told by one of the Williams men that the Williams rusher whom Fish caught after his long run, was the champion sprint runner of Williams, and had a record of 100 yards in 10 1-2 seconds.

There were about ten Tech men at the Williams game Saturday. The team left Boston the day before the game, and spent the night at North Adams.

There has been snow for a week at Williamstown, and the Williams men have got used to playing in it, so that they didn't seem to mind it in the least in their game with us.

Amherst has protested the legality of the league meeting the other day, at which it was decided that the Williams-Amherst game should be played over again. It is probable that this protest will be allowed, and the game will stand as it is. There is no more reason why this game should be played over, than there is for our game with Amherst to be played again. There was the same referee in both games.

Williams vs. Technology.

GAME called at 2.30. Williams had the kick-off, and forced the ball near our goal, but it was forced back to the center. Wells, the Williams captain, then made a fine rush, and the ball was in very dangerous proximity to our line. Williams tried to force through, and lost the ball.

Duane kicked the ball out; Belden caught it on the run, and made the first touch-down for Williams. Safford kicked a goal. The ball was now kept in the center of the field, each team playing a strong game, and neither gaining any decided advantage. Finally Dearborn made a beautiful running catch and kick, sending the ball to their line, and Bartlett forced Williams to make a safety. Score, Williams, 6; Tech, 2.

In the next half, Bemis took Dearborn's place as half-back. Dame and Taintor forced the ball forward, but Safford's run brought it back. On a kick by Bemis, Bartlett fell on the ball near their goal. Herrick passed to Bemis, who ran in and made a touch-down, amidst frantic excitement. Bemis then kicked a goal.

The ball was next in the center. Duane tackled Wells after a run. Ladd tackled their full-back, causing him to drop the ball, which Tracy picked up and made the second touch-down for Technology. Bemis kicked a goal under peculiar circumstances, the ball rolling over before his foot hit it. The spectators now thought the game was settled, and so were unprepared for Williams' fine play, which kept the ball in our territory for the remainder of the game. Richards got the ball on a fumble and rushed over our line. No goal from this touch-down. Then the ball was kicked near our line, and Duane was downed. Duane then kicked over the fence, which gave the ball to Williams, and Wells made a splendid rush, securing a touch-down and tying the score. The game was now very exciting, as the play was on or near our goal-line, and offered fine chances for Williams. The game ended with a good run by Herrick. Score, Williams 14; Tech 14.

This was the squarest and most interesting game that has yet been played. The referee, Mr. Kelley, of Harvard, was perfectly satisfactory to both sides. The rush-lines of both teams played strongly. For Williams, Wells, Johnson, and Bigelow were most prominent. For the Tech, Duane, Vorce, and Bartlett tackled finely, and the team-work was excellent.

Exposed to a trying situation.—A juryman.

Amherst vs. Technology.

GAME called at 2.35. The ball was forced toward Amherst's goal, but rushes by Smith and Alvord regained some of their lost ground. After a series of rushes by the Amherst half-backs, and kicks by ours, Smith kicked the ball with the wind, and it was downed near our goal. Then a very peculiar succession of circumstances happened. Duane made three kicks, which carried the ball the length of the field. Each of these kicks was muffed by Amherst, and Ladd, Tracy, and Goodhue profited by their errors, Goodhue making the first touch-down for Technology. No goal. Phillips then kicked the ball from their twenty-five-yard line, and Devens made a touch-back. Rushes by Bartlett, Dame, Duane, and Bemis brought the ball back. Herrick passed to Devens, who ran in and made a touch-down. Next on a kick by Devens, and fumble by Amherst, Tracy made the third. Bemis was unable to kick goals, on account of the strong wind. Score at end of first half: Tech, 12; Amherst, 0. Amherst did not take advantage of the high wind, which was in their favor, and their rushing did not work.

In the second half Amherst kept the ball for some time, but was forced to relinquish it on four downs. Then Ladd made a fine run, and on being tackled passed to Herrick, who made a touch-down, from which Bemis kicked a goal.

It was plainly evident that their rush-line was completely broken up. The backs, Phillips and Nourse, still tried to rush through our line, but rarely succeeded. Finally by their efforts the ball was forced by the center. Herrick then passed to Duane, who ran through their rush-line, and was not stopped until he was a few feet from their goal. It seemed as if every man on their team tackled him, but they were unable to prevent him from making the prettiest run seen on the field this year. Herrick made a long pass to Devens, who made the last touch-down. Final score: Technology, 22; Amherst, 0. In this half, at no time did the ball pass our twenty-five-yard line. Amherst was unprepared for the complete change

which our team has undergone, and expected an easy victory, as we had the fatigue of the Williams game the day before. Their quarterback and captain played superbly. Our team tackled finely, especially the half-backs, Bemis and Duane. There was no weak spot evident, the whole eleven playing an errorless game. The improvement is remarkable, and due entirely to faithful training and practice. Great credit should be given Captain Herrick for his perseverance and up-hill work.

Exeter vs. Technology.

OUR team went to Exeter November 6th, and easily defeated Phillips Academy. The game was played in a pouring rain. Our team had the kick-off, and rushes by Duane and Dearborn carried the ball to their line, where Duane made the first touch-down after four minutes play. Fine rushes by Exeter's half-backs brought the ball near our goal, where it stayed until Kimball made a long run half the length of the field. Duane rushed through, and made the second touch-down for Technology. Exeter now kept the ball, and the play was in our ground.

McFarlan, Exeter's captain, made a fine run, securing a touch-down, from which a goal was kicked. The ball then went back and forth, Devens doing good work as full-back, until time was called. Score: Technology, 8; Exeter, 6.

In the second half, play lasted but fifteen minutes, and the ball was in Exeter's ground all the time. Dearborn and Duane rushed, and Duane scored a touch-down in three minutes. Dearborn soon made another fine run. Herrick passed to Devens, who was finely tackled by McFarlan. Devens was substituted by Sterns. Dearborn made another touch-down by a run, and Duane kicked a goal. McFarlan now made a good rush, but the lost ground was easily regained, and Vorce made the last touch-down just before time was called. Total score: Technology, 22; Exeter, 6.

Exeter has a fine player in McFarlan, but the rest of the team need practice. Duane and Dearborn, on our side, rushed finely, and Vorce

and Devens tackled well. It is many years since we beat Exeter, but we hope that this game will be the inauguration of a new series. Our team should have had a larger number of supporters. Only two men were there to share in the victory.

Technology vs. Williams.

GAME was called at 1.45 in a heavy snow-storm. It was a regular Williams day, there being three inches of snow on the ground. The aspect of the field was very similar to that of the field at Springfield in our game there last year. Williams won the toss and chose the windward goal, making our men play with the wind and snow in their faces. Tech had the kick-off and opened out well. Herrick passed to Bartlett, who made a good rush. Duane also made a good rush. Williams got the ball when it was kicked out of bounds, and directly began to regain their lost ground. By a series of short rushes the ball came toward our goal, and in five minutes after play was commenced Williams made a touch-down, from which a goal was kicked. After the kick-off the ball was forced to Williams' twenty-five-yard line, but soon came back to the center of the field again. Dearborn made a good rush. A kick by Duane was stopped by a Williams rusher. Dearborn fell on the ball. The ball then went to our goal-line by a series of kicks, and in thirty minutes Williams made another touch-down, from which a goal was kicked. The ball after the kick-off came back toward our goal, and another touch-down was made in the corner of the field. The punt-out was muffed. No further score was made in this half, and time was called with the ball on our twenty-five-yard line. Score, 16 - 0.

Our men played better the second half, and Williams confined themselves wholly to keeping the ball, often carrying it back ten yards, to avoid losing it. At the end of twenty-five minutes the ball was directly in front of our goal. After three downs the ball was passed to Belden, who kicked a fine goal from the field. After this the ball was mostly in the center, Williams

having it nearly all the time. Dearborn made a fine run and kick. Soon after the ball was passed to Dearborn, who made a beautiful catch of a bad throw, and made a long run. The ball then came very close to the Williams goal-line. Herrick passed to Devens, who was unable to hold the ball, from the cold. A Williams rusher caught the ball and started up the field, nobody being in front of him. Fish pluckily started after him, and ran him down between our ten and fifteen yard lines. Soon after this time was called. Score, 21 to 0. Williams played a fine game, and earned their victory well. Belden played best for them. For our side, the playing of Vorce, Tracy, and Fish was the best, especially the tackling and running of Fish, who distinguished himself in those lines. Herrick also played a fine game. Our chief fault was the inability of our light rush line to hold the Williams men, who broke through nearly every time. Williams also blocked well, and held the ball. The game was most remarkable in this respect. It looked very peculiar to see the ball passed back to the Williams half-back, and then to see him stand and wait until our rushers tackled him. This was their plan altogether. Having the wind in the first half, they played hard. In the second, they did not try to score so much as to hold the ball.

A Revery.

On a bridge one eve I pondered,
Leaning o'er the rustic rail,
While my thoughts as quickly wandered
Far from out the quiet vale.

Overhead the moon was beaming,
Turning darkness into light;
'Neath my feet the waters gleaming
Looked a polished mirror bright.

And the silence was unbroken,
Save the murmuring of the trees;
Suddenly a name seemed spoken,
Whispered by the sighing breeze.

And I asked myself in sadness,
"Is there one who loves me still?"
Oh! the answer brought me gladness,—
"One!" chimed the clock upon the hill.

F. W. H.



What '86 are Doing.

Geo. P. Aborn. Knowles Pump Works, Warren, Mass.

B. C. Batcheller. With Pneumatic Dynamite Gun Co., Fort Hamilton, New York Harbor.

W. L. Brainerd. Draughtsman with Allen & Kenway, Architects, 220 Devonshire Street, Boston, Mass.

W. H. Chadbourn, Jr. Chief engineer W., C. & C. Railroad, Chadbourn, N. C.

W. L. Church. Instructor in math. and physical sciences, Berkeley School, Providence, R. I.

H. E. H. Clifford. Assistant in physics, Mass. Inst. Technology.

Louis R. Cobb. Engineering department of B. & Mo. R.R., Lincoln, Neb.

Louis F. Cutter. Field assistant in charge of plane-table-sheet, U. S. Geological Survey.

Charles C. Doe. Harvard Medical School, Boston, Mass.

Orrin S. Doolittle. Assistant in the laboratory of the Penn. Railroad, Altoona, Penn.

Geo. W. Farmer. In the shops of the Atchison, Topeka & Santa Fé R. R., Topeka, Kan.

Edward S. Foss. Assistant first year chem. lab., Mass. Inst. Technology.

F. E. Foss. Resident engineer on the Chicago, St. Paul & Kansas City Railway, Fairbank, Iowa.

Theo. R. Foster. Draughtsman with Canadian Locomotive and Engine Co., Kingston, Ontario.

D. L. K. Hathaway. With H. Lippitt & Co., Silver Spring Bleaching and Dyeing Co., Providence, R. I.

Edward E. Higgins. With Standard Electric Company of Vermont, St. Johnsbury, Vt.

W. R. Ingalls. Manager Kokomo Ore Works, Kokomo, Colorado.

Wm. F. Jordan. Engineering department of Burlington & Missouri River R. R., Lincoln, Neb.

Wilson H. Low. Chemist of the Penobscot & Chemical Fiber Co., West Great Works, Me.

E. H. Mumford. "Under instruction" in the locomotive shops of the Union Pacific R. R. Co.

Henry B. Merriam. Division engineer of the Union Pacific R. R. Co., Denver, Col.

A. A. Noyes. Graduate student at Mass. Inst. Technology.

E. L. Pierce. Monadnock Paper Mills, Bennington, N. H.

C. F. Richards. Harvard Law School.

A. G. Robbins. Assistant in civil engineering department, Mass. Inst. of Technology.

L. K. Russell. Assistant in general chemistry, Institute, Arlington, Mass.

J. F. Seavey. City engineer's office, Lowell, Mass.

W. E. Shepard. Assistant electrician of the Schuyler Electric Light Co., Hartford, Ct.

J. E. Simpson. Lawrence, Mass.

A. B. Stoughton. With Lewis Bros. & Co., Philadelphia, Pa.

Wm. M. Taylor. With Chandler & Taylor, Phoenix Machine Works, Indianapolis, Ind.

C. D. Turnbull, Boston, Mass.

G. F. Reynolds. With M. C. Bullock Manfg. Co., Chicago, Ill.

E. J. Wilson. Assayer for the Revenue Gold Mining Co., Red Bluff P. O., Madison Co., Montana.

C. I. Wood. Draughtsman with Keystone Bridge Co., Pittsburg, Pa.

C. H. Woodbury. Artist, Boston, Mass.

V. F. Worcester. With Hastings Pavement Co., Hastings-on-the-Hudson, N. Y.

F. R. Young. In Bessemer dept. of Penn. Steel Co., Steelton, Penn.

D. Van Alstine. In repair shops of the L. & N. R. R., Louisville.

Jas. C. Duff. Testing dept. of the C. M. & St. P. R. R. Co., Milwaukee, Wis.

W. L'E. Mahon. Draughtsman with C. E. Buhl & Co., of Detroit.

Theodore Stebbins. With Western Edison Electric Light Co., Chicago.

E. O. Tuttle and F. H. Page have established a company for the manufacture of knitted goods in Minneapolis, Minn.

'73. H. L. Ripley.

1st Lieut. H. L. Ripley, acting chief engineer officer of the department, will proceed to Fort Reno, Ind. T., for the purpose of making a preliminary survey with the view to the construction of a system of sewerage for the proper drainage of that post, and upon the completion of this duty he will return to these headquarters. S. O. 104, Sept. 16, D. M.—*Army and Navy Register*.

'87. F. C. Todd, 551 Case Ave., Cleveland Ohio.

COMMUNICATIONS.

The Editors do not hold themselves responsible for opinions expressed by correspondents.

TO THE EDITORS OF THE TECH:

Dear Sirs,—There is a growing desire at the Institute for more class interest—the lack of which among us is an only too-well manifested fact.

If, as is thought of, a series of class-championship foot-ball games are held, they will help to increase this interest, and will also give rise to an already expressed wish for class colors. At class contests, as foot-ball games, the wearing of class colors would stimulate more or less needed enthusiasm.

The class of '87 have colors, and the class of '89 intend to have some.

Now, would it not be well to adopt some system in this matter of class colors? At Harvard, the Freshmen always have the same colors, and on their

becoming Sophomores, they take the colors of the last Senior class and carry them through the next three years.

With us, the Freshmen need not always have the same colors, but let them take the colors of the Seniors who have just graduated, and keep them through the four years. These colors would then be taken by the entering Freshmen.

In this way, the same four colors, or combinations of colors, would always remain at the Institute, and would have more than a momentary interest for the classes that carry them. There will be a sort of association clinging to them that will make them of greater value.

A committee of, say three, might be appointed from each class to consider the matter, and to report to a combined meeting of the four classes, which would either reject or accept the scheme. The classes who now have no colors could then adopt some, subject, perhaps, to the advice of the combined committee, in order to prevent conflicting colors among the classes.

FRANCIS HART.

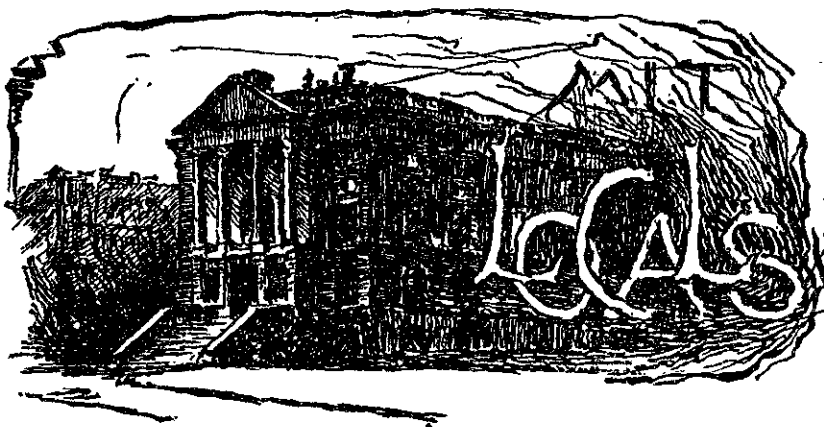
Regression.

When the dreary rain is falling,
And the clouds their gloom impart,
Oft I seem to hear thee calling,
Calling to my restless heart;
And my heart so wildly striveth
From its doubtings to be free,
That no thought my soul contriveth
Can bring peace or rest to me.

O, for some strong rush of feeling
Treading caution in the dust,
Living springs of faith revealing
'Neath the ice of cold distrust;
Teaching me again the rapture
Of thy old familiar power,
Scorning Past nor fearing Future,
Triumph in the Present hour.

Then, should kind Fate grant a meeting,
With such clasp would I atone,
I could feel thy dear heart beating
Sympathetic with my own;
And sweet Love, no longer banished
From his dwelling in my breast,
To that home whence doubt had vanished
Might return, and be at rest.

L.



T. D. is very dignified since he has become of age.

Several Freshmen viewed the Amherst game from the Dartmouth Street Bridge.

The effect of the foot-ball cheer has been hurt by shortening the last "rah."

The class of '89 has purchased a neat bulletin-board for the posting of class notices.

Devens is considered the best full-back in the Northern Inter-collegiate Association.

The Freshmen have organized a Lacrosse Club, and Mr. Martin has been elected manager.

A number of professors and instructors were interested spectators at the foot-ball matches with Williams and Amherst.

Guy Kirkham, '87, former editor of THE TECH, has had several poems in *Life* during the past summer.

Messrs. Borden and Burgess, '86, are traveling in Spain at present. They will pass the winter in Italy or Egypt.

Messrs. Brace, '87, Victor Ray, '88, Jarecki, '88, Newton, '88, Vorce, '88, and Ladd, '88, have become members of the Sigma Chi fraternity.

Many distinguished educators from all parts of the country were in the city last week attending the 250th anniversary celebration of Harvard.

The gymnasium has been much improved by the painting of the interior during the summer. It will look quite well when used for dances this winter.

Prof. Atkinson is a firm believer in the game of foot-ball. He advises his students to go out and play, as it will give them energy for brain work.

A regular meeting of the 2 G was held at Young's, November 4th, and papers were read by A. R. Nickels and G. Whitney. Six new members were elected.

Prof. Richards is improving steadily, and the physicians say that he will be out of danger in a few days, if he continues to improve as he has the last few days.

The Hammer and Tongs Club dined at Young's, Saturday, November 13th. Before partaking of the repast, the club initiated Mr. G. F. Curtiss, '87.

Two Sophomores supported Mr. Wilson Barrett, recently, in a performance of Claudian. The roles they assumed were those of members of the populace.

Last year fifteen men graduated in the civil department. Up to date Prof. Swain has applications for thirty men, and, moreover, the positions offered were all permanent.

A jersey sleeve captured from a Williams half-back is one of our foot-ball trophies. The next thing in order is to capture the pennant from Williams.

It is reputed that the Poker Club has become a reality, and has been organized by some enterprising Freshmen. Whether "all records are lost" or not is unknown.

On account of pressure of other duties, Mr. Dearborn has resigned his position as an editor of the "Technique." Mr. Clary Ray will take his place on the board.

The committee on class photographs appointed at last class meeting of '87, have been overwhelmed with invitations from leading photographers for complimentary sittings.

Durfee has figured in the reports of the foot-ball games as Watts. This cognomen is quite applicable, since he lately attracted so much attention about the Institute as a "dog-fancier."

A meeting of the Athletic Club was held on Nov. 5th, and remarks were made about offering a prize for the class foot-ball championship. It was decided not to do so this season.

During one of the lectures on Railroad Management, an '87 civil asked very particularly about rates on dogs upon European Railroads. It is rumored that he is going to take his poodle for a trip abroad.

The Society of '89 met at the Quincy House, Friday, Nov. 12th, and a pleasant evening was spent in social enjoyment. The members now realize what they missed by not holding meetings last year.

The annual assessment of the Athletic Club is due, and should be paid at once. The fall indoor meeting will be held early in December, and the list of probable events has been posted on *The Tech* bulletin-board.

The editors of "Technique" desire that all members of fraternities not having chapters at the Institute, will hand in their names, together with the names of their fraternity and chapter, to Mr. Warren, '88, through THE TECH box in Rogers' corridor.

The Society of Arts met at the Institute on Thursday, November 11th. Mr. Frank Ridlon, of the Brush-Swan Co., read a paper on Incandescent Lighting from Arc Light Circuits, and Mr. Chas. E. Avery exhibited and described his apparatus for the Domestic Manufacture of Carbonated Beverages.

A certain party of Freshmen made themselves particularly fresh while going over to Cambridge, to see the celebration, the other evening. Not only did they sing (?) and cheer in a car full of ladies, but they rendered the interior of the car absolutely disagreeable, not to say dangerous, by pushing and shoving.

We feel certain that the majority of the class of '90 would discountenance such actions, and it seems to us a great pity that a few students are thus permitted, not only to injure the reputation of their own class, but at the same time to reflect upon the entire institution of which they happen to be members.

An interesting game of foot-ball was played on the Union Grounds, Nov. 5th, between the Architects and the Chemical Laboratory eleven. The Labs. were badly defeated by the score of

24-0. The features of the game were the playing of Fuller and Sully and the "kicking" of Dempsey.

The Society of '87 met at Parker's, Friday, November 12th, with a good attendance of members. After the lunch, the society was entertained by accounts of European travel by Messrs. Patterson, Shepard, and Harris, interspersed with music by a quartette consisting of Messrs. Shepard, Thompson, Sprague, and Hussey. The evening was well enjoyed by all.

The recent exhibition of drawings and designs in the Architectural department was quite creditable, and some very good pieces of work were shown. The mentions given were as follows: fourth year, "Amphitheatre," first mention, Perkins and Gale; third year, "Fragments of Greek Architecture," first mention, Meade, Bosworth, and Proctor, second mention, Bigelow and others; third year, "Temple Tomb," first mention, Fuller and Bigelow.

At a meeting of the third and fourth year Architects on Monday afternoon, Nov. 1, the M. I. T. Architectural Society was organized, and the following officers elected: President, Joseph B. Gay; Vice-President, H. D. Bates; Secretary, F. A. Moore; Treasurer, J. E. Fuller; Executive Committee, J. B. Gay, D. H. Perkins, and H. F. Bigelow. The object of the club is for the general improvement of the members in architecture and to extend the work of the architectural department.

Tennis Tournament.

THE tournament has progressed slowly, owing to unfavorable weather. Since our last issue the singles have been decided, Mr. Beals, '90, securing the first prize. His sets with Chase were as follows: 5-7, 3-6, 6-0, 6-4, and 6-3. As may be inferred from the score, this was a very interesting contest. The Freshmen may well be proud of obtaining the championship. The contest for second place was begun November 11th, and the following scores made:—

Smith beat May, 3-6, 6-3, 6-4.
Chase beat Sprague, 6-1, 6-1.

THE COLLEGE WORLD.

HARVARD.—The students were excused from college exercises from Thursday evening till Tuesday, during the celebration of the 250th anniversary.—In the game with Dartmouth, Woodman kicked eleven of the thirteen goals.—The Freshmen complain that the Seniors do not invite them to their punches.—Holden has recovered sufficiently to resume his place in the team.—A Banjo Club has been formed.—The eleven beat Exeter at foot-ball by a score of 158 to 0. Next.—Not a single point has been scored against either Yale or Harvard at foot-ball yet.—In the championship game with Wesleyan, the score stood: Harvard, 34; Wesleyan, 0.—The *Crimson* contained eight pages during the celebration.

YALE.—About 20 per cent of the Freshmen use tobacco. This is about 4 per cent higher than the average of preceding classes.—An attempt is being made to revive an interest in her Ohio Club.—The Freshmen have subscribed \$300 for the support of their foot-ball team.—Justin McCarthy addressed the Phi Beta Kappa Society.

Arrangements have been perfected whereby the *Princetonian*, the *Yale News*, and the *Harvard Crimson*, the daily papers representative of the colleges, have formed an intercollegiate associated press. This will enable the students at these colleges to receive telegraphic news on important matters, and will tend to make a college paper indispensable to all interested. The Chess Club has sent a challenge to Columbia, and appointed a committee to make arrangements to have the game played at New Haven. The *News* complains that the New Haven dailies crib their college news from its columns.

PRINCETON.—Professor Shields has returned.—The '89 Chess Club has resumed its game with Yale '89. The game was begun last spring.—The Druid-Princeton lacrosse game played in Baltimore, October 30th, resulted in a victory for the former. Score, 4 goals to 3.—

One hundred and thirteen men tried for positions on the Freshman Glee Club.—The members of the foot-ball eleven are said to be taking boxing lessons.—The foot-ball team of the University of Pennsylvania was present at Princeton, on the 13th, to witness the Harvard-Princeton game.

BROWN COLLEGE has subscribed six thousand dollars toward a new gymnasium.

DICKERSON has been granted a chapter by the Phi Beta Kappa Society.—Robert Young, colored, who was at first refused admittance, has been allowed to enter.

DARTMOUTH COLLEGE is about to lose President Bartlett; Prof. A. S. Hardy will take his place.—The eleven beat the University of Vermont team 90 to 0.

CORNELL.—Ex-President White is said to have the finest historical library in the country. It consists of 30,000 volumes and many valuable manuscripts.

TRINITY'S foot-ball eleven is forbidden by their Faculty to play with Yale, Princeton, or Wesleyan.

THE UNIVERSITY OF PENNSYLVANIA'S foot-ball team has only four of last year's men.

MICHIGAN UNIVERSITY.—Duffy recently broke the record in kicking the foot-ball. He punted it 168 feet 7½ inches.

There are 210 active branches of the Y. M. C. A. in American colleges.

THE MAINE STATE COLLEGE has allowed the Sophomores to return whom it had suspended for hazing. Among them are two young ladies.

The Lehigh Burr opens with its usual crop of fall chestnuts—*Lafayette*.

WESLEYAN offers a prize to that member of her eleven who shall make the highest number of points against opposing teams during the season.

AT EARLHAM COLLEGE five students were expelled for attending a representation of "Richard III."

AT COLUMBIA there are only 77 Freshmen. The students claim that the smallness of the class is largely due to the bad management of the college.

Of six editorials in *The Exonian*, four are on foot-ball.



A MODERN LUXURY.

His clothes, which are of London make,
Are fine as one could choose;
His hat was bought in Regent Street,
As likewise were his shoes.
His neckties are from London, too,
His stick is English fir,
And he has a cockney accent
That's bound to make a stir.

He's not an Anglo-maniac,
With dollars more than wit,
Nor yet a British gentleman
Who's trav'ling 'round a bit.
He'll hire out very promptly to
The swell who can afford
The luxury of keeping an
Ex-valet to a lord.—*Life*.

Professor in Logic: "What is the universal negative?"

Sleepy Junior (arousing himself): "I am not prepared."

The labor candidate always writes his name "henry george," so strong is his antipathy to capital.—*Life*.

Closing quotation: "Shut up!"—*New Haven News*.

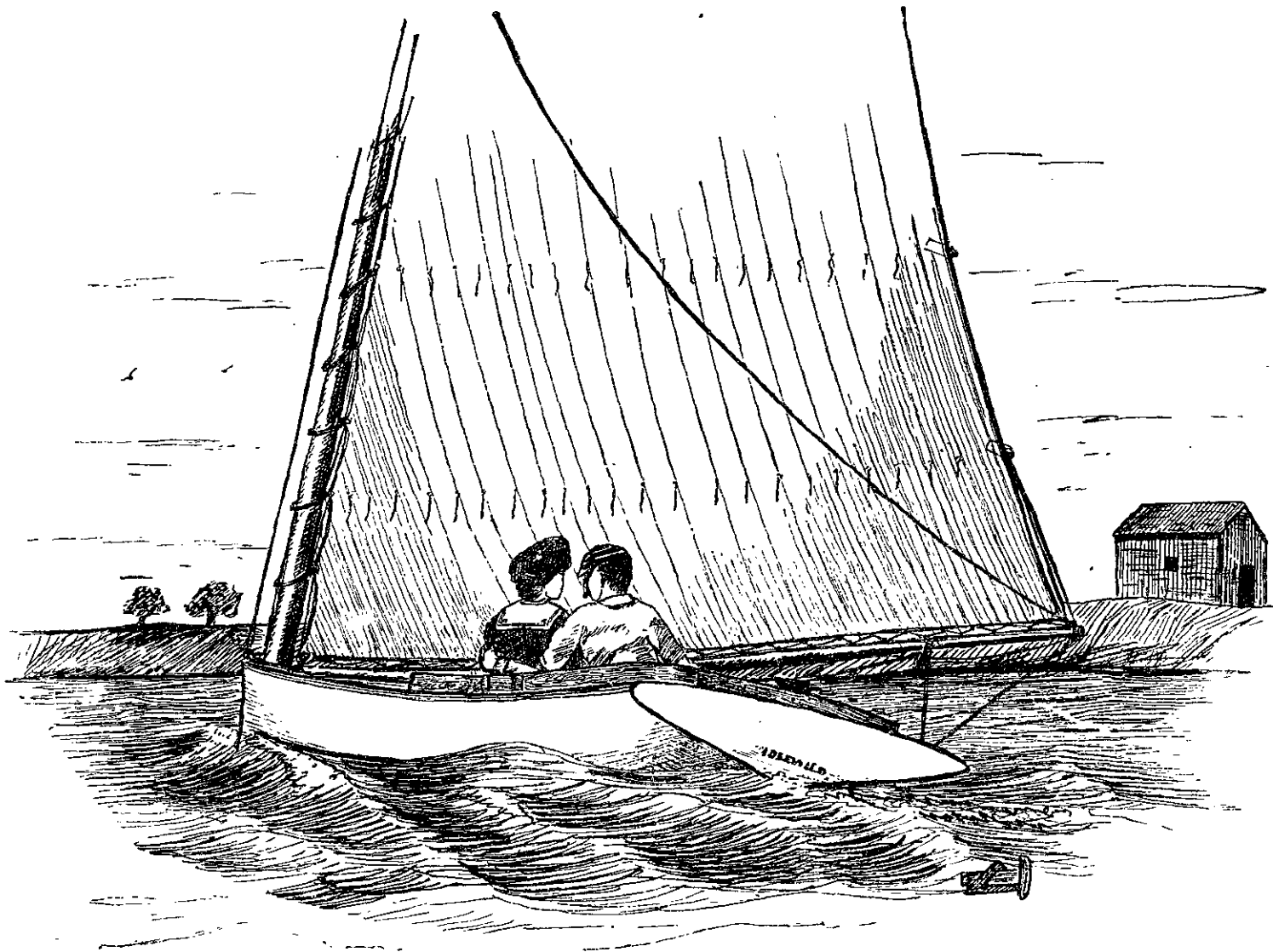
Soph. (translating): "*Vous me faites frémir.*" "You make me"—(pause of uncertainty).

Prof.: "*Fremir.*"

Soph. (with forced energy): "Tired." Amid the smiles and tears of his classmates, he was quietly informed by the Professor that he might rest.—*Ex*.

The Roman committee have offered a prize for a jubilee-hymn, to be sung at St. Peter's on the Pope's celebration day. We have suggested by cable,

"The Pope he leads a jolly life,"
and are anxiously awaiting the gold.—*Puck*.



DANGER.

He: "YOU SEE, SAILING AS WE ARE NOW, THERE IS ABSOLUTELY NO DANGER; I AM HUGGING THE SHORE."

She: "OH, HOW NICE FOR THE SHORE!"
(And yet we wonder at yachts capsizing.)

HE'S NOW SEARCHING FOR GOUR.

A young thing of about twenty-four,
Of the "genus homo" called bour —
Once threatened to guage
A Boston maid's auge,
And straightway was shown to the dour.

— *Life.*

CALLING.

He called on a king in his young days,
And wondered at sights that he *saw*:
He called on two kings somewhat later,
To see what a crowd they would *draw*.
He called on three kings in his old age,
And promised with me to go snacks;
But now there is mourning in Gotham,—
For the other man called on *four jacks*.

— *Yale Courant.*

TWO SHUTTERS.

I.

A ponderous, stifling mist pervades the air,
And deep the night,
While lamplights in each puddle flare
Reflected light.
For Luna and the rest since last eve's tear,
Combing the snarls from out their hair,
Have simply drawn the shutters tight.

2.

A lumbering Standard-cab tears through the mud,
In hasty flight,
Bearing debris of a would-be "Blood,"
A sorry wight!
Here curtains, too, obscure from gaze of all
The occupant curled in a ball
Behind the Hansom shutters "tight,"

— *Yale Courant.*

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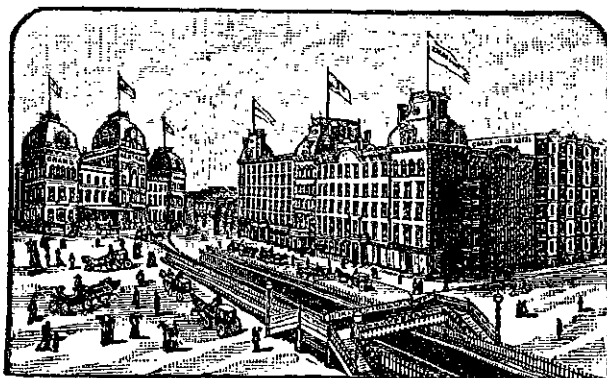
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Mary had a little ram
With horns as black as ink,
And every time that Mary laughed
The ram was seen to wink.

He followed her to church one day,
His heart was filled with guile,
And when his mistress knelt to pray,
Meandered down the aisle.

A sudden shock, and she described
A parabolic curve;
But still the ram did linger near
With unabated nerve.

What made the ram butt Mary so?
Ah, who can answer that?
Why, Mary licked the ram, you know,
And he gave tit for tat.

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-11-

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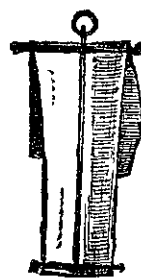
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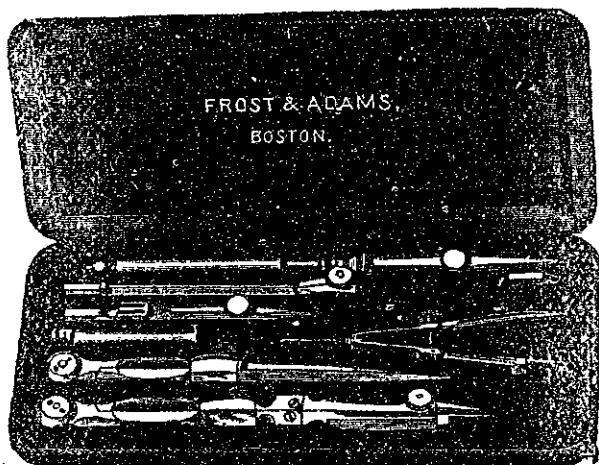
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